

## Taxonomy of the *Ageratina vernalis* (Asteraceae: Eupatorieae) complex

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### ABSTRACT

A taxonomic re-study of the broadly distributed, highly variable, *Ageratina vernalis* complex is presented. From among its midst, two novelties are extracted: *A. jalpana* B.L. Turner, **sp. nov.** from Queretaro; and *A. zaragozana* B.L. Turner, **sp. nov.** from Nuevo Leon. A complete synonymy is presented, along with photographs of the types and distribution maps.

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In my treatment of *Ageratina* for Mexico (Turner 1997), I provided an abbreviated account of *Ageratina vernalis*, including within this material that I now treat as two novelties that are described below.

**AGERATINA VERNALIS** (Vatke & Kurtz) King & H. Rob., Phytologia 19: 227. 1970.

*Ageratina skutchii* B.L. Rob.

*Ageratina subcoriacea* King & H. Rob.

*Ageratina subinclusa* (Klatt) King & H. Rob.

*Ageratina subpinninervia* (Klatt) King & H. Rob.

*Eupatorium grandiflorum* Andre

*Eupatorium melanolepis* Sch.-Bip. ex Klatt

*Eupatorium monticola* L. Williams

*Eupatorium oxylepis* Sch.-Bip. not *E. oxylepis* DC.

*Eupatorium subinclusum* Klatt

*Eupatorium subpinninervium* Sch.-Bip.

*Eupatorium vernale* Vatke & Kurtz

Dur, Nue, Tam, Hid, Ver, Pue, Oax, Cps and Guatemala, oak and pine-oak forests, mostly in rocky soils, 2000-3000 m; flowering: Oct-Jan. **Map 1**

**Shrubs** 2-4(6) m high. **Stems** (upper) rounded, 3-5 mm across, markedly pubescent with mostly upswept crinkly hairs, glabrate with age, the indument ca 1 mm high. **Leaves** (mid-stem) 10-20 cm long, 4-8 cm wide; petioles 3-5 cm long; blades broadly ovate to subcordate, sparsely pubescent above and below, mainly along the venation, the margins serrulate. **Capitulescence** a terminal cymose panicle of numerous heads, 5-10 cm high, 8-15 cm wide, the ultimate peduncles 3-12 mm long. **Heads** 9-12 mm long, 6-8 mm wide; involucre bracts linear-lanceolate, 2-seriate, 3-6 mm long, their apices acute. **Receptacles** plane, glabrous, epaleate, ca 1.5 mm across. **Florets** ca 20 per head; corollas 6-7 mm long, white to purplish-pink, glabrous throughout; tube ca 1.5 mm long; throat ca 1.5 mm long, passing into the tube; lobes 5, ca 1 mm long, glabrous, or rarely with a few short hairs (e.g. Nuevo Leon: Cerro Viejo, *Hinton et al.* 23960, TEX). **Achenes** 2-4 mm long, black, sparingly pubescent along the ribs; pappus of 20-25 bristles, 4-6 mm long.

REPRESENTATIVE SPECIMENS EXAMINED: **GUATEMALA. DEPT. QUETZALTENANGO:** **Mpio. de Cantel**, "above Xecam on western slopes of Zunil Ridge (Sierra Chuatroj)," 1 Aug 2008, *Quedensley* 5247 (TEX); **Mpio., Quetzaltenango**, nw slopes of Volcan Santa Maria, 4 Jan 2008,

*Quedensley 5200* (TEX); **Mpio. de Zunil**, nw slopes of Pico Zunil, 3 Jan 2008, *Quedensley 5193* (TEX); **DEPT. SAN MARCOS: Mpio. San Marcos**, 3 Jan 1992, *Prather 1067* (TEX).

**MEXICO. CHIAPAS: Mpio. San Cristobal Las Casas**, 16-20 km E of Chilil, 10 Nov 1976, *Breedlove 41401* (LL). **DURANGO: Mpio. Puerto Buenos Aires**, "8 km al O del Poblado La Ciudad," 8 Nov 1978, *Garcia P. & Delgado S. 903* (TEX). **HIDALGO: Mpio. Jacala**, 20.2 mi NE of Jacala, 20 Dec 1991, *Soule 2920* (TEX). **NUEVO LEON: Mpio. Zaragoza**, Cuauhtemoc, 10 Nov 1994, *Hinton et al. 25076* (TEX). **OAXACA: Mpio. Mihuatlan**, "Siete Ocotes," 21 Nov 1995, *Hinton et al. 26266* (TEX). **PUEBLA: Mpio. Teziutlan**, "2 km S of Teziutlan, 4 Dec 1983, *Barrie 770* (TEX). **TAMAULIPAS: Mpio. Guemes**, "El Chihue." 10 Nov 1994, *Hinton et al. 25101* (TEX). **VERACRUZ: Mpio. Las Vigas**, EL Volcancillo, 30 Oct 1975, *J. Dorantes et al. 5098* (TEX).

In my treatment of *Ageratina* for Mexico (Turner 1997), this species will key directly to *A. vernalis*; my descriptive parameters of the latter in that account included material herein separated (below) as *A. zaragozana* and *A. jalpana*, both perennial herbs to 1 m tall, these not included in the above description.

Williams (1976), in his treatment of *Eupatorium* for Guatemala, positioned this species among his "EXCLUDED SPECIES," largely because of the absence of a Type specimen, noting that the illustration which was published with the description of *Eupatorium vernale* showed the plant to possess "both penninerves and plinerves" leaf blades, "a condition not likely to occur in a single species." My examination of the illustration shows the leaves to be fairly typical of what I take to be *A. vernalis*. A mounted specimen of the type from the Vatke herbarium, available on the web (Virtual Herbarium 2011) also matches well the taxon concerned. In addition, I have examined a photograph of a Berlin specimen (US) said to be the type of *Eupatorium subpenninervium*, a name I place in synonymy with *A. vernalis*, although B. Robinson (cf below) accepted both names in his treatment of *Eupatorium* for Mexico.

I follow H. Robinson (1990) in placing *A. skutchii* in synonymy with the present taxon, its pappus lobes presumably glabrous, but I have not examined type material.

In his treatment of *Eupatorium* (including *Ageratina*) for Mexico, Robinson (1961) accepted *E. vernale*, noting that it was "Described from cultivated material thought to have been of Mexican origin." He distinguished his *E. vernale* from the closely related *E. subpinninervium* by the supposedly longer involucral bracts in the former, a character I find to be quite variable, and have therefore placed the latter in synonymy with *A. vernalis* (Turner 1997).

Since my treatment of *Ageratina* for Mexico (1997), I have studied anew the entire assemblage, and additional, collections of plants closely related to *A. vernalis* on file at LL-TEX, concluding that two additional species lie hidden within the complex, as follows:

### **AGERATINA jalpana** B.L. Turner, sp. nov. Fig. 1

**Perennial herbs** to 1 m high. **Stems** (upper) rounded, ca 3 mm across, densely pubescent with crinkly trichomes, the indument 1-2 mm high. **Leaves** opposite, gradually reduced upwards, 5-10 cm long, 4-5 cm wide; petioles 1.5-3.0 cm long; blades ovate-cordate, having 7-9 pronounced ribs, their apices broadly obtuse to rounded, densely pubescent beneath like the stems, surfaces densely glandular-punctate, their margins evenly crenate. **Capitulescence**, a terminal cymose panicle, ca 5 cm high, 9 cm wide, the ultimate peduncles 1.0-1.5 cm long. **Heads** campanulate, numerous, ca 10 mm long, 4-6 mm wide. **Involucral bracts**, 5-6 mm long, linear-lanceolate, 2-seriate, glabrous or nearly so, their apices acute. **Receptacles** plane, epaleate, glabrous, ca 1.5 mm across. **Florets** ca 20/head; corollas glabrous, pink or rose-colored, 6-7 mm long; tubes ca 1.5 mm long; throat ca 4 mm long, grading into the tubes; lobes ca 1 mm long. **Achenes** (immature) ca 3 mm long, minutely ciliate, especially above; pappus of ca 25 ciliate bristles ca 3 mm long.

TYPE: **MEXICO. QUERETARO: Mpio. de Jalpan**, 3 km al SE de El Lobo, pine-oak forests, 1750 m, 7 Dec 1987, *Leonel Chavez 136* (Holotype: TEX).

According to label data, the plant is an herb 1 m high having rose-colored heads. It was reportedly abundant at the site of collection.

The species is named for the Municipio de Jalpan, whence the type; not to be confused with *A. jalpana* B.L. Turner from Zacatecas, this named for the city of Jalapa (Turner 1996).

The type was originally identified as “aff. *Eupatorium trinionum* McVaugh,” but the plant is much closer to *Ageratina vernalis*. The novelty is noteworthy for its very distinctive leaves, which are pinnately nervate with 7-9 pronounced ribs, markedly villous beneath and having apices that are broadly obtuse to rounded.

**AGERATINA ZARAGOZANA** B.L. Turner, *sp. nov.* **Fig. 2**

Perennial herbs to 40 cm high. **Stems** (upper) rounded, 1-2 mm across, minutely pubescent with upturned hairs, the vestiture ca 0.3 mm high. **Leaves** (upper) opposite, 4-8 cm long, 2-3 cm wide; petioles 1-2 cm long; blades acute basally, ovate, 3-nervate to weakly pinnately nervate, widest near the middle, or nearly so, grading into the petioles, glabrous on both surfaces, or nearly so, glandular punctate, the margins serrulate. **Capitulescence** a terminal cymose panicle, 2-3 cm high, 4-5 cm wide, the ultimate peduncles 5-10 mm long. **Heads** campanulate, 10-12 mm high, 5-8 mm wide bearing 10-19 florets. **Receptacles** plane, epaleate, glabrous, ca 2 mm across. **Involucral bracts** 2-3 seriate, 4-7 mm long, ca 1 mm wide, their apices acute, sparsely pubescent, and beset with amber globules. **Corollas** 6-8 mm long, glabrous; tubes ca 1.5 mm long, throats 4-5 mm long, passing into the tube, the lobes sparsely pubescent, ca 1 mm long. **Achenes** ca 3 mm long, sparsely ciliate; pappus of ca 25 ciliate bristles, 5-7 mm long.

TYPE: **MEXICO. NUEVO LEON: Mpio. General Zaragoza**, Cerro Viejo, “fir forest.” 2810 m, 20 Nov 2000, *Hinton et al.* 23977 (Holotype: TEX).

ADDITIONAL COLLECTION EXAMINED: **MEXICO. NUEVO LEON: Mpio. General Zaragoza**, 14.7 km SE of Zaragoza, southern slope of Cerro Viejo, “Mixed oak-pine-fir forest,” along small stream and along path from the dirt road to Cerro Viejo,” 2500-2520 m, 1 Nov 1999, *Yahara et al.* 1834 (TEX).

This novelty will not key to any meaningful name in my Mexican treatment of *Ageratina*, but I reckon it to belong to the *A. vernalis* complex, largely based upon head and floral features, although the leaves are amply different from that species, as will be noted in Fig. 2. It occurs in close proximity to *A. vernalis* on Cerro Viejo, as indicated in Map 1; indeed, it is possible that the occasional hybrid between these might occur, to judge from the abnormal Hinton collection called to the fore in the above account of the latter, the plant possessing very small leaves and occasional hairs on its corolla lobes.

The species is named for the Municipio Gen. Zaragoza, from whence the type.

**Key to taxa within the *Ageratina vernalis* complex:**

1. Shrubs 2-4 m tall; larger leaves 10-20 cm long.....**A. vernalis**
1. Herbs 0.3-1.0 tall; larger leaves 4-10 cm long... **(2)**
2. Leaf blades densely pubescent beneath, not tapering into the petioles;  
heads bearing ca 20 florets; pappus bristles ca 3 mm long; Que.....**A. jalpana**
2. Leaf blades glabrous or nearly so, tapering into the petioles;  
heads bearing 10-19 florets; pappus bristles 5-7 mm long; Nue.....**A. zaragozana**

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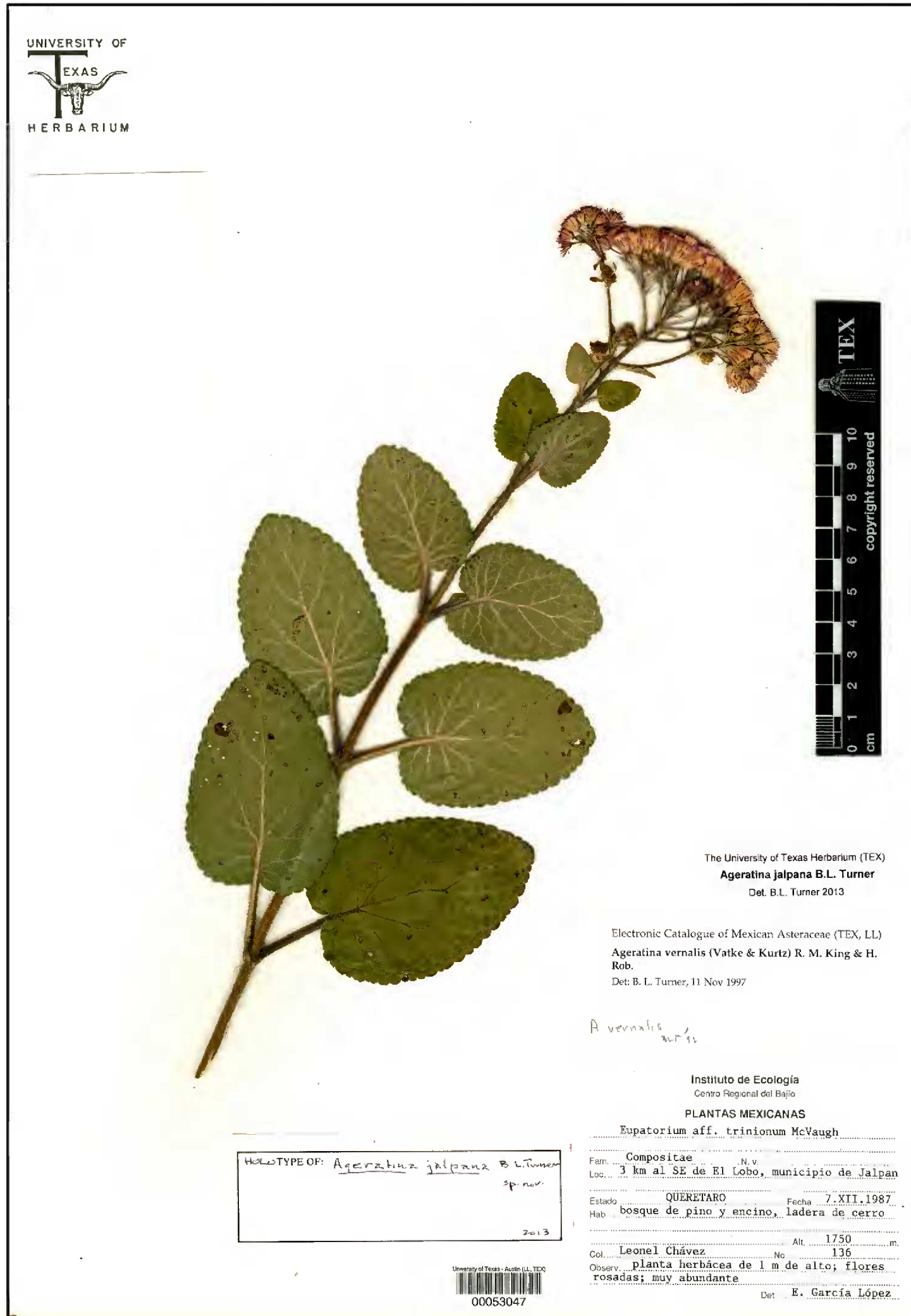


Fig. 1. *Ageratina jalpana* (Holotype: TEX).

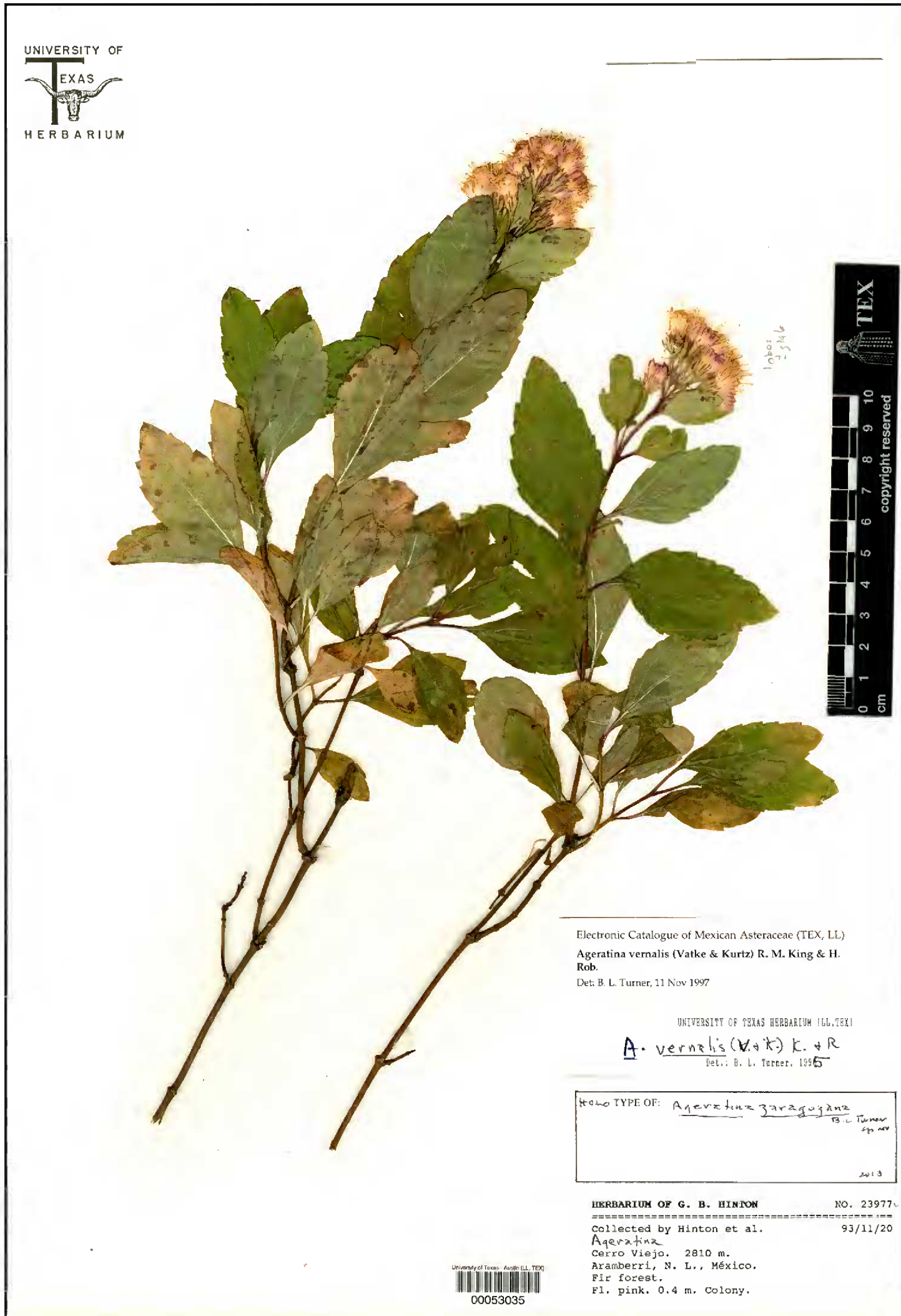


Fig. 2. *Ageratina zaragozana* (Holotype: TEX).

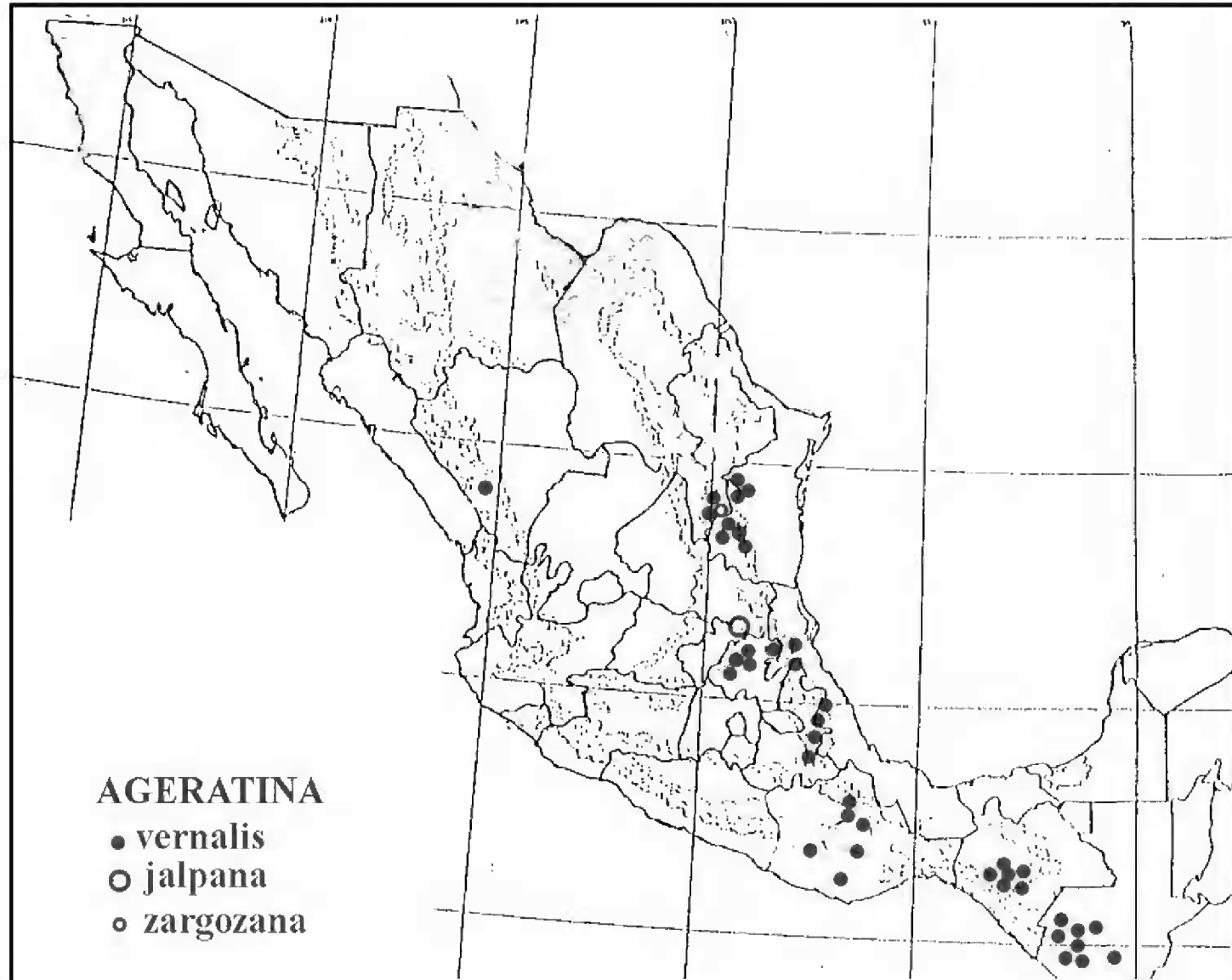


Fig. 3. Distribution of the *Ageratina vernalis* complex.